

BIOHACK NOTES



PLANT KINGDOM

- BASED ON ACTIVE RECALL AND SPACED REPETITION
- TARGET 360/360 IN NEET BIOLOGY & 100/100 IN BOARDS!



PARTH GOYAL





• INTRODUCTION

- 1) Whittaker proposed 5 kingdom classification in year _____
- 2) The earlier systems of classification used only _____ characters such as _____, _____, _____ etc.
- 3) Earlier system was based mainly on _____ or on _____ given by Linnaeus.
- 4) Earlier system given by Linnaeus were natural/artificial because -
- 5) Artificial system gave equal weightage to _____ and _____.
- 6) Sexual characters and more easily influenced by environment than vegetative characteristics. T/F
- 7) Natural system also consider internal features like - (4)
- 8) Natural classification was given by _____ and _____. (NEET)
- 9) Natural system was based on _____ among the organism.
- 10) At present, natural system of classification is accepted. T/F
- 11) Classification based on evolutionary relationship is _____ (NEET)
- 12) _____ taxonomy is carried out using computers.
- 13) Hundreds of characters can be considered at the same time in _____
- 14) Cytotaxonomy is based on - (3)
- 15) _____ uses chemical constituents of plants to resolve confusion.

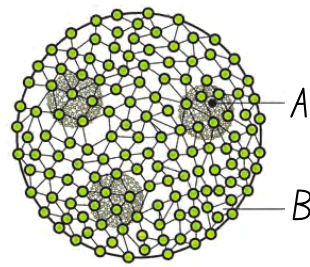


• ALGAE

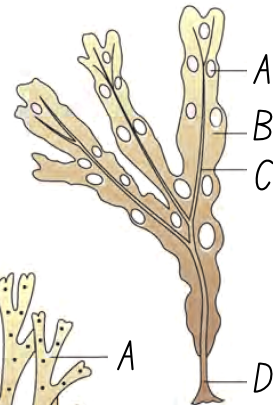
- 16) Algae are _____ in structure.
- 17) Algae are not found in marine environment. T/F
- 18) Example of animal associating with algae -
- 19) Colonial form of algae example (1)
- 20) Filamentous form example (2)
- 21) Marine form ex (1)
- 22) Algae don't reproduce by sexual method. T/F
- 23) Vegetative reproduction in algae is by _____
- 24) Most common asexual spore of algae is _____
- 25) Zoospores are ciliated. T/F
- 26) Flagellated isogametes for sexual reproduction found in (1)
- 27) Non flagellated isogametes are found in (1)
- 28) Example of anisogamous conditions (1)
- 29) Ex. Of oogamous condition (2)



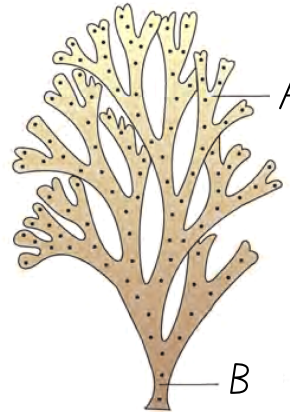
30) Identify the diagram and tell the labelling A and B



31) Identify the diagram



32) Identify the diagram and also identify the labelling A, B, C, D.



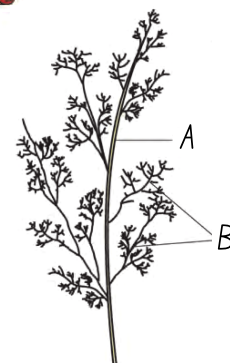
33) Identify the diagram and also identify the labelling A, B



34) Identify the diagram and also identify the labelling A, B, C.



35) Identify the diagram and also identify the labelling A.



36) Identify the diagram and also identify the labelling A, B.

37) At least _____% of total CO₂ on earth is fixed by algae.

38) However they are not able to increase the level of dissolved oxygen in their surroundings, instead they increase the BOD. T/F

39) They produce energy rich compounds. T/F

40) There are _____ species of marine algae used as food, examples are (3)

41) Certain marine/fresh water _____ and _____ algae produce _____ (water holding substance) eg. _____ & _____.

42) Algin and carrageen are produced by _____ and _____ algae respectively.



PARTH GOYAL

43) Agar is obtained from _____ & _____ is used to grow _____ and in preparation of _____ & _____

44) Chlorella is multicellular. T/F

45) Chlorella is rich in _____ used by space travelers.

• CHLOROPHYCEAE

46) Commonly called _____

47) Plant body maybe of 3 forms. Name them.

48) They have dominance which two pigment ?

49) Chloroplast in green algae can't be ribbon shaped. T/F

50) Shapes of chloroplast in green algae (5)

51) Storage body located in chloroplasts are called _____

52) Pyrenoids don't contain protein. T/F

53) Green algae cell wall is made of inner layer of _____ and outer layer of _____

54) Vegetative rep take place by _____ or _____

55) Asexual reproduction take place by non flagellated spores. T/F

56) Green algae are only isogamous and anisogamous in nature. T/F

57) Examples (5)

• PHAEOPHYCEAE

58) Phaeophyceae are found particularly in marine habitat. T/F

59) Filamentous form found in (1)

60) Profusely branched forma are _____ which may reach height of _____ m.

61) Pigments present (4)

62) Brown algae can be olive green. T/F

63) The colour vary from olive green to brown depending upon the amount of _____, which is a type of _____ pigment.

64) Food is stored in the form of _____ or _____.

65) The vegetative cells have a _____ wall covered from outside by _____

66) The plant body is attached to substratum by _____ and has a stalk called _____

67) Leaf like photosynthetic organ called _____

68) Vegetative rep by _____

69) Asexual rep by uni/biflagellate _____ which are _____ shaped.

70) Here zoospores have one/two, equal/unequal and medially/laterally attached flagella.



71) Gametes are _____ shaped and bear one/two cilia/flagella medially/laterally attached.

72) Example (5)

• RHODOPHYCEAE

73) Red due to presence of pigment _____

74) Majority are fresh water. T/F

75) They are found mostly in great depths of oceans and not at lighted areas. T/F

76) Food is stored as _____ which is similar to _____ and _____ in structure. (NEET 2020)

77) Vegetative rep by _____

78) They reproduce asexually by biflagellate zoospores. T/F

79) Sexually by non-motile gametes. T/F

80) In _____, there are complex post fertilisation events.

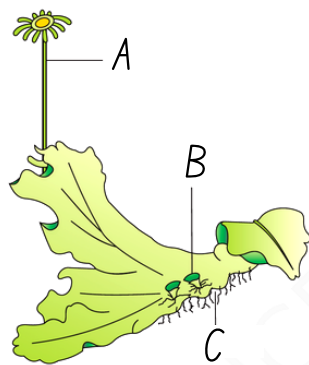
81) Sexual rep in red algae may be isogamous, anisogamous or oogamous. T/F

82) Examples (4)

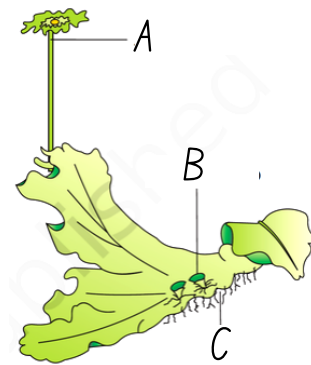


• BRYOPHYTES

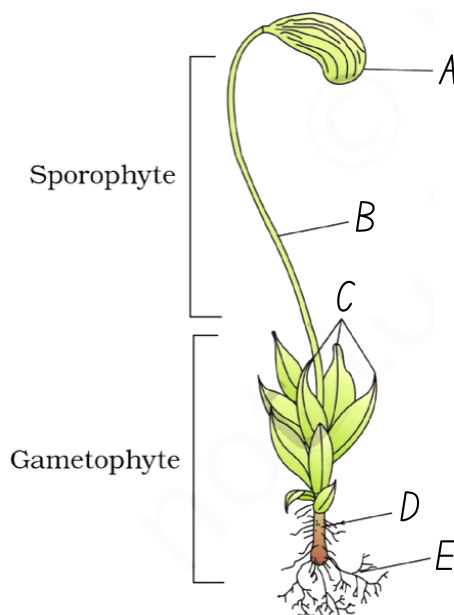
83) Identify the diagram and labellings.



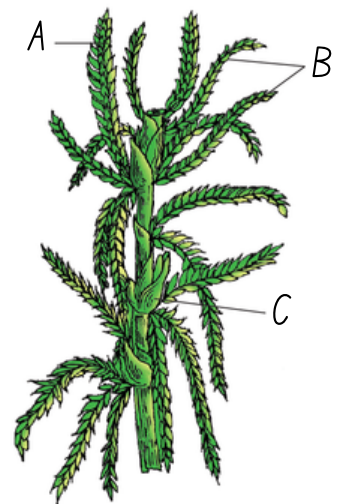
84) Identify the diagram and labellings.



85) Identify the diagram and labellings.



86) Identify the diagram and labellings.



87) Are called _____ of plant kingdom.



PARTH GOYAL

- 88) These plants are dependent on _____ for sexual reproduction.
- 89) They usually occur in well-lit areas. T/F
- 90) They play important role in _____ on bare rocks/soils.
- 91) They are attached to substratum by _____
- 92) Rhizoids may be unicellular or multicellular. T/F
- 93) Bryophytes have true root, stem and leaves. T/F
- 94) The main plant body of bryophytes is called _____
- 95) The male sex organ of bryophytes is called _____ and produce uni/biflagellate antherozoids.
- 96) The female sex organ is _____ shaped and is called _____
- 97) Bryophytes are of great economic importance. T/F
- 98) Peat is provided by _____ which is a moss/liverwort.
- 99) Peat is used for trans-shipment of non-living materials because of their capacity to hold water. T/F
- 100) First organism to colonise rocks are _____ and _____.
- 101) Bryophytes are of great ecological importance. T/F
- 102) Mosses prevent soil erosion. T/F

• LIVERWORTS

- 103) Plant body of liverwort is _____ structure.
- 104) The thallus is dorsiventral/isobilateral.
- 105) Asexual rep takes place by _____ or by specialised structure called _____
- 106) Gemmae are green/white, uni/multicellular, asexual/sexual buds which develop in small receptacles called _____
- 107) The sporophyte is differentiated into 3 parts. Name them.
- 108) Spores are produced in the _____

• MOSSES

- 109) Gametophyte consist of two stages, first stage is _____ and second is _____
- 110) Features of protonema stage (4)
- 111) Leafy stage develops from primary/secondary protonema as a medial/lateral bud.
- 112) Leafy stage has _____ arranged leaves.
- 113) They are attached to soil through uni/multicellular and unbranched/branched rhizoids.
- 114) Protonema stage bears sex organs. T/F
- 115) Vegetative rep by _____ and _____
- 116) Antheridia and archegonia are produced at the base of the leafy shoot. T/F
- 117) The sporophyte in liverworts is more elaborate than moss. T/F
- 118) _____ have elaborate mechanism of spore dispersal.
- 119) Examples (3)





• PTERIDOPHYTES

120) Pteridophyta include _____ & _____

121) Pteridophytes are used in medicinal purpose. T/F

122) Pteridophytes are used as soil binders. T/F

123) First terrestrial plants to possess vascular bundles is

124) Pteridophytes flourish in well lighted conditions. T/F

125) Pteridophytes have true root, stem and leaves. T/F

126) Example of species possessing microphylls (1)

127) Example of species possessing macrophylls (1)

128) Leaf like appendages are called

129) Strobili also called _____ are present in (2)

130) Spores give rise to conspicuous/inconspicuous, unicellular/multicellular, thalloid gametophyte called _____

131) They need _____ for fertilisation, hence they are restricted to narrow geographical regions. (NEET)

132) They have antheridia and archegonia. T/F

133) Example of heterosporous plants. (3)

134) The female gametophyte is retained on the parent sporophyte for variable periods. T/F

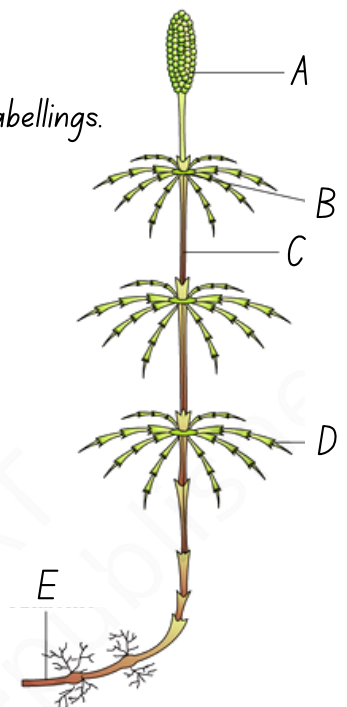
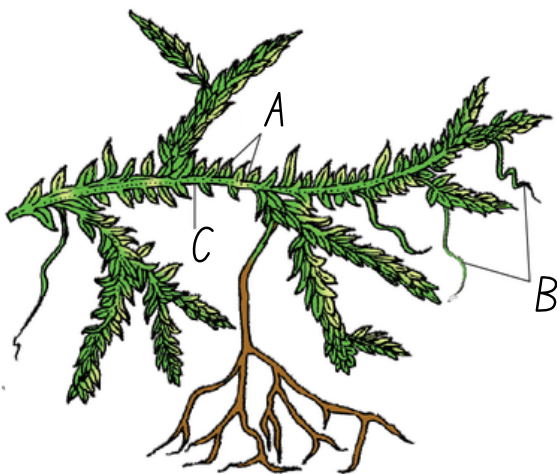
135) The development of zygote to young embryos take place in _____ (NEET)

136) This event is precursor of _____ (NEET)

137) Classes and their examples

138) Identify the diagram and labellings.

139) Identify the diagram and labellings.



140) Identify the diagram.



141) Identify the diagram.



• GYMNOSPERMS

142) "Gymnosperms" means _____

143) Ovules are not enclosed in a _____

144) In gymno, ovules remains exposed even after fertilisation. T/F

145) _____ is also called the giant redwood tree. (NEET)

146) Gymnosperms have generally _____ roots.

147) Mycorrhiza is found in _____

148) In *Cycas*, _____ roots are found in association with _____ (NEET)

149) Unbranched stem found in (1)

150) Branched stem found in (2)

151) In *cycas*, _____ types of leaves persist for few years. (NEET)

152) The leaves of gymnosperms are well adapted to withstand extreme temperature, humidity and wind. T/F (NEET)

153) In conifers, needle like leaves are present. T/F

154) Water loss is further prevented by _____ and _____

155) The gymnosperms are both hetero and homosporous. T/F (NEET)

156) Sporophylls are arranged spirally. T/F

157) Sporophylls form _____ or _____, _____

158) Male strobili is also called _____ and bear _____ and _____

159) Megasporangia also called _____

160) Female strobili also called _____

161) *Pinus* is monoecious. T/F (NEET)

162) *Cycas* is monoecious. T/F (NEET)



PARTH GOYAL

163) MMC is differentiated from _____

164) Nucellus + Envelope which protect it =

165) MMC divided mitotically/meiotically.

166) Ovules are born on _____

167) Female gametophyte is retained within megasporangium. T/F

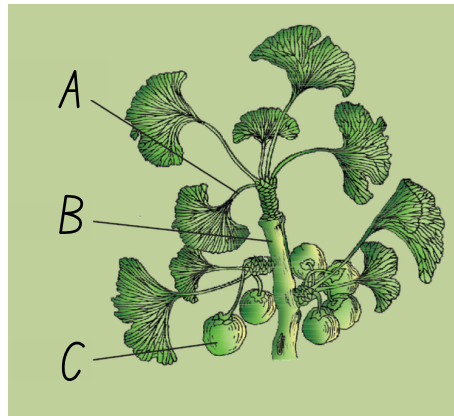
168) In _____, male and female gametophyte don't have independent existence. T/F

169) Identify the diagram..

170) Identify the diagram.



171) Identify the diagram and labellings.



• ANGIOSPERMS

172) Smallest plant in the world -

173) Largest plant in the world -

174) Largest Angiosperm -

175) Stamen consists of two parts. Name them.

176) Tetra or pentamerous flowers are found in _____

177) Female sex organ in a flower is _____

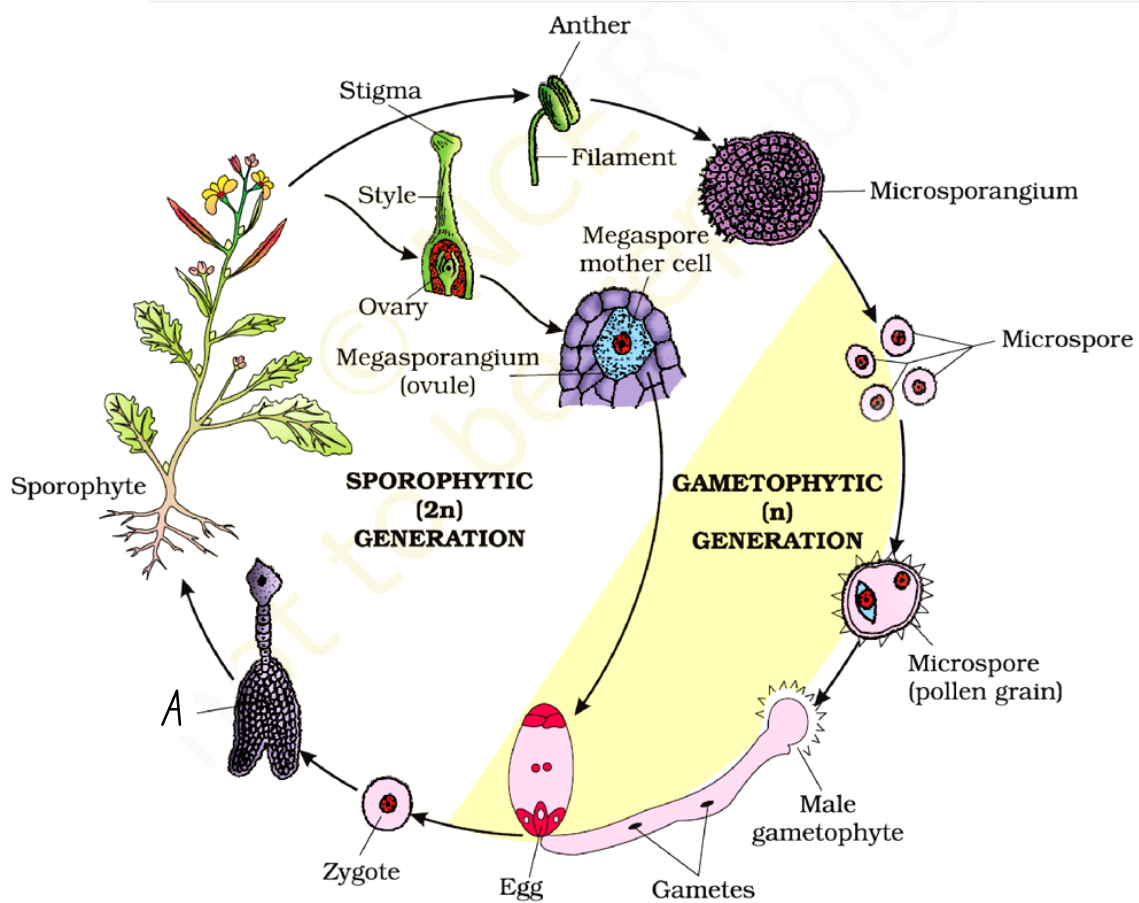
178) Pistil divided into (3)

179) _____ event is unique to angiosperms.



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180) Identify A in the given diagram



• LIFE CYCLE AND ALTERNATION OF GENERATION

181) Haplontic life cycle ex (3)

182) Diplontic life cycle ex (3)

183) Haplo-diplontic ex (5)



PARTH GOYAL

PLANT KINGDOM



PARTH GOYAL



ANSWERS



• ANSWERS

- 1) 1969
- 2) Gross superficial morphological, habit, color, number and shape of leaves
- 3) Vegetative characters, androecium structure
- 4) Artificial, they separated closely related species and were based on few morphological characters
- 5) Vegetative and sexual characteristics
- 6) False
- 7) Ultrastructure, anatomy, embryology and phytochemistry
- 8) George Bentham and Joseph Dalton Hooker
- 9) Natural affinities
- 10) False
- 11) Phylogenetic classification
- 12) Numerical
- 13) Numerical taxonomy
- 14) Chromosome number, structure and behaviour
- 15) Chemotaxonomy

• ALGAE

- 16) Autotrophic
- 17) False
- 18) Sloth bear
- 19) Volvox
- 20) Ulothrix and Spirogyra
- 21) Kelp
- 22) False
- 23) Fragmentation
- 24) Zoospore
- 25) False
- 26) Ulothrix
- 27) Spirogyra
- 28) Uldorina

- 29) Volvox, Fucus
- 30) Volvox, A - daughter colony, B - parent colony
- 31) Ulothrix
- 32) Fucus, A - Air Bladder, B - Frond, C - Midrib, D - Holdfast
- 33) Dictyota, A - Frond, B - Stipe
- 34) Laminaria, A - Frond, B - Stipe, C - Holdfast
- 35) Prophyra, A - Frond
- 36) Polysiphonia, A - Main Axis, B - Branches
- 37) 50%
- 38) False
- 39) True
- 40) 70, porphyra, laminaria, sargassum
- 41) Marine, Brown and red, hydrocolloid, algin and carrageen
- 42) Brown and red
- 43) Gelidium and Gracillaria, microbes, ice creams and jellies
- 44) False
- 45) Protein

Chlorophyceae

- 46) Green algae
- 47) Unicellular, colonial or filamentous
- 48) Chl a and b
- 49) False
- 50) Discoid, plate-like, reticulate, cup-shaped, spiral and ribbon shaped
- 51) Pyrenoids
- 52) False
- 53) Cellulose, pectose
- 54) Fragmentation or formation of different types of spores
- 55) False
- 56) False



57) Spirogyra, ulothrix, volvox, Chara,
Chlamydomonas (Mnemonic - SUV Car Chalaya ?)

Phaeophyceae

- 58) True
59) Ectocarpus
60) Kelps, 100m
61) Chl a, c, carotenoids, xanthophyll
62) True
63) Fucoxanthin, Xanthophyll pigment
64) Laminarin or mannitol
65) Cellulosic, algin
66) Holdfast, stipe
67) Frond
68) Fragmentation
69) Biflagellate zoospore, pear (pyriform)

- 70) Two, unequal, laterally
71) Pyriform, two, flagella, laterally
72) Sargassum, Ectocarpus, Laminaria, Fucus,
Dictyota - (Mnemonic - SELFie le ke DP lagao)

Rhodophyceae

- 73) R- phycoerythrin
74) False
75) False
76) Floridean starch, amylopectin and glycogen
77) Fragmentation
78) False
79) True
80) Sexual rep
81) False
82) Polysiphonia, Porphyra, Gracillaria & Gelidium, Mne - (Parth Go)^2

Classes	Common Name	Major Pigments	Stored Food	Cell Wall	Flagellar Number and Position of Insertions	Habitat
Chlorophyceae	Green algae	Chlorophyll a, b	Starch	Cellulose	2-8, equal, apical	Fresh water, brackish water, salt water
Phaeophyceae	Brown algae	Chlorophyll a, c, fucoxanthin	Mannitol, laminarin	Cellulose and algin	2, unequal, lateral	Fresh water (rare) brackish water, salt water
Rhodophyceae	Red algae	Chlorophyll a, d, phycoerythrin	Floridean starch	Cellulose, pectin and poly sulphate esters	Absent	Fresh water (some), brackish water, salt water (most)

• BRYOPHYTES

- 83) Female Marchantia, A - Archegoniophore, B - Gemma Cup, C - Rhizoids
84) Male Marchantia, A - Antheridiophore, B - Gemma Cup, C - Rhizoids
85) Funaria, A - Capsule, B - Seta, C - Leaves, D - Main axis, E - Rhizoids
86) Sphagnum, A - Antheridial Branch, B - Branches, C - Archegonial Branch
87) Amphibians 88) Water

- 89) False
90) Plant succession
91) Rhizoids
92) True
93) False
94) Gametophyte
95) Antheridium, biflagellate
96) Flask, archegonium



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- 97) False
 - 98) Sphagnum, moss
 - 99) False, living materials
 - 100) Mosses and lichens
 - 101) False
 - 102) True
 - 103) Thalloid
 - 104) Dorsiventral
 - 105) Fragmentation, gemmae
 - 106) Green, multicellular, asexual, gemmae cup
 - 107) Foot, seta, capsule
 - 108) Capsule
 - 109) Protonema and leafy stage
 - 110) Creeping, green, branched and frequently filamentous
 - 111) Secondary, lateral
 - 112) Spirally
 - 113) Multicellular, branched
 - 114) False
 - 115) Fragmentation and budding
 - 116) False
 - 117) False
 - 118) Mosses
 - 119) Funaria, Polytrichum and Sphagnum
- Brytophyte mnemonic - Sala Pappu Mother E***er -
Sphagnum, Polytrichum, Marchantia, Funaria

• PTERIDOPHYTA

- 120) Horsetails and ferns
- 121) True
- 122) True
- 123) Pteridophyta
- 124) F
- 125) F
- 126) Selaginella
- 127) Ferns
- 128) Sporophylls
- 129) Cones, ex -(Selaginella, Equisetum)

- 130) Inconspicuous, multicellular, prothallus
- 131) Water
- 132) True
- 133) Selaginella, Marselia, Salvinia
(Mnemonic - SMS)
- 134) True
- 135) Female gametophyte
- 136) Seed habitat
- 137) Psilopsida (Psilotum), Lycopsidea (Selaginella, Lycopodium), Sphenopsida (Equisetum) & Pteropsida (Dryopteris, Pteris, Adiantum)
Mnemonic - (Ptere Sote Psapne Ly 360)
- 138) Selaginella, A - Leaves, B - Roots, C - Stem
- 139) Equisetum, A - Strobilus, B - Node, C - Internode, D - Branch, E - Rhizome
- 140) Fern
- 141) Salvinia

• GYMNOSPERMS

- 142) Naked seeds
- 143) Ovary wall
- 144) T
- 145) Sequioia
- 146) Tap
- 147) Pinus
- 148) Coralloid root, cyanobacteria
- 149) Cycus
- 150) Pinus, Cedrus
- 151) Pinnate
- 152) True
- 153) True
- 154) Thick cuticle and sunken stomata
- 155) False
- 156) True



PARTH GOYAL

157) Cones or strobili or lax

158) Microsporangiate, microsporophylls and microsporangia

159) Ovules

160) Macrosporangiate

161) T

162) F

163) Nucellus

164) Ovules

165) Meiotically

166) Megasporophylls

167) T

168) Gymnosperms

169) Cycus

170) Pinus

171) Ginkgo, A - Dwarf shoot, B - Long shoot, C - Seeds

Mnemonic - Parth Go. haters are naked, so they say SC Ca PG (Schedule Caste Ca Parth Go.) - Sequoia, Cycus, Cedrus, Pinus, Ginkgo

P.S. - I am general, this is just for mnemonic.



SCAN AND DONATE US SO THAT WE CAN CREATE MORE SUCH QUALITY CONTENT FOR YOU!

JUST ₹10-20 WILL BE APPRECIABLE! :)

• ANGIOSPERMS

172) Wolfia

173) Sequoia

174) Eucalyptus

175) Anther and filament

176) Dicot

177) Pistil

178) Stigma, style and ovary

179) Double fertilisation

180) A - Embryo

181) Volvox, Spirogyra and some species of Chlamydomonas

182) Fucus, angio and gymno

183) Ectocarpus, Polysiphonia, kelps, pterido and bryophyta

WHEN YOU TAKE AWAY ALL BIOHACKS
AND DON'T DONATE ANYTHING BACK...!!



PARTH GOYAL